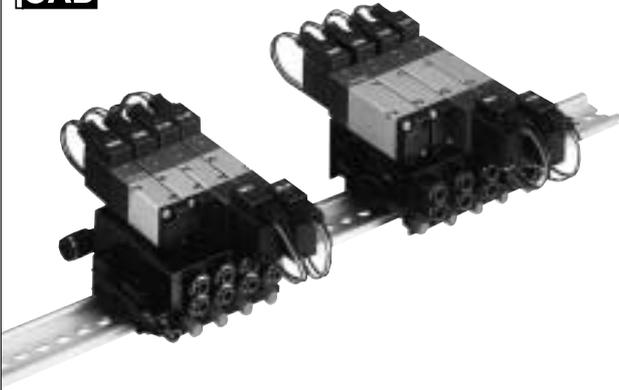




Presenting our CAD drawing  
data catalog



# KOGANEI

## VALVES GENERAL CATALOG

# STACKING MANIFOLD INDEX

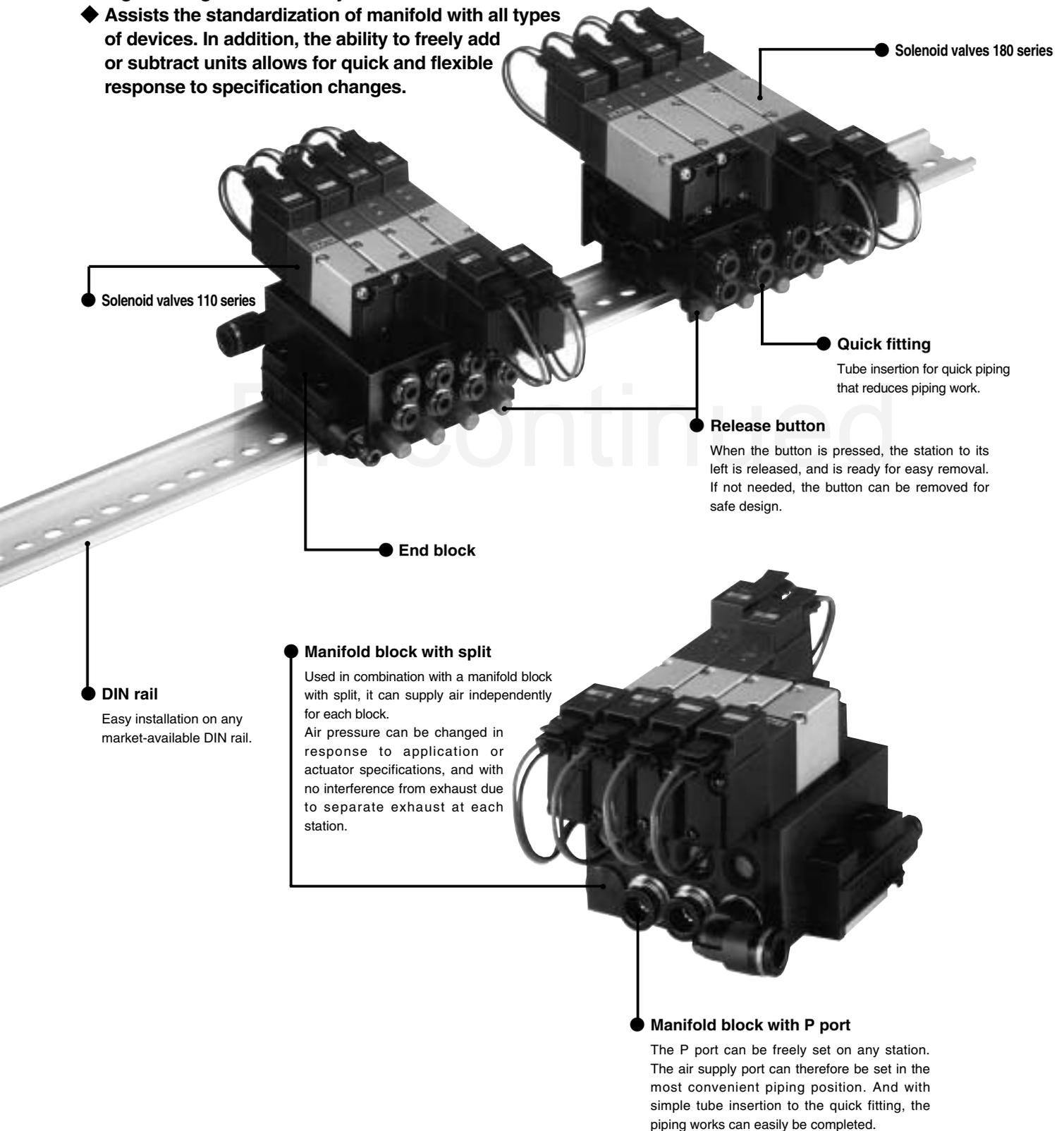
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Discontinued

# Flexible & User-Friendly Stacking Manifold

- ◆ The standardized plastic-type manifold block widens the range of manifold applications. Compatible with the 110, 180 Series Solenoid Valves.
- ◆ Achieves diverse unit mountings, in various combination of the valves responding to the required designs and purposes. Moreover, it brings out the high-performance characteristics of the AJ type (all port, with quick fitting) manifold.
- ◆ Lighter weight enables easy installation and removal from the DIN rail.
- ◆ Assists the standardization of manifold with all types of devices. In addition, the ability to freely add or subtract units allows for quick and flexible response to specification changes.



● Solenoid valves 110 series

● Solenoid valves 180 series

● Quick fitting  
Tube insertion for quick piping that reduces piping work.

● Release button  
When the button is pressed, the station to its left is released, and is ready for easy removal. If not needed, the button can be removed for safe design.

● End block

● DIN rail  
Easy installation on any market-available DIN rail.

● Manifold block with split  
Used in combination with a manifold block with split, it can supply air independently for each block. Air pressure can be changed in response to application or actuator specifications, and with no interference from exhaust due to separate exhaust at each station.

● Manifold block with P port  
The P port can be freely set on any station. The air supply port can therefore be set in the most convenient piping position. And with simple tube insertion to the quick fitting, the piping works can easily be completed.

# Characteristics and Specifications of Stacking Manifold

## Flexible Response to System Configurations

All types of standardized manifold blocks can be connected responding to application requirements. It enables quick and flexible response to sudden changes in specifications or number of units.

## Wide Variation, and Flexible Response

Offers five patterns and 10 types of manifold blocks for mounting valve combinations in the 110, 180 series solenoid valves, to enable construction of the optimum manifold for required application.

## Reduces Operation Manhours, and Simplifies Maintenance

Easy installation of manifolds on the DIN rail greatly reduces operations manhours. In addition, each manifold block can be simply removed with the corresponding valve for easy maintenance. Furthermore, with one DIN rail available for mounting other electrical devices, the system offers effective use of space.

## Achieves Reduced Weight, and Excellent Cost Performance

Use of plastic material for the manifold block reduced the weight. In addition, standardization of blocks and common use of parts achieves excellent cost performance.

## Specifications

Item	Manifold function	Stacking type all port manifold	
		A110E1	A180E1
Mounting valve type	2-, 3-port	A110-4E1	A180-4E1
	5-port, single solenoid	A110-4E2	A180-4E2
	5-port, double solenoid	A110-4KE2	A180-4KE2
	5-port, twin solenoid	A113-4E2	A183-4E2
	5-port, 3-position	A113-4KE2	A183-4KE2
	5-port, all port block	A113-4KE2	A183-4KE2
Media		Air	
Maximum operating pressure MPa {kgf/cm <sup>2</sup> }		0.7 {7.1}	
Proof pressure MPa {kgf/cm <sup>2</sup> }		1.05 {10.7}	
Operating temperature range (atmosphere and media)°C		5~50	
Mounting type		DIN rail mounting type (standard) Direct mounting type (option)	

Remarks: 1. For the mounting valve specifications, see the solenoid valves 110 series and the solenoid valves 180 series.  
2. Conversion to psi., 1Mpa=145psi., 1kgf/cm<sup>2</sup>=14.2psi., e.g. 0.7Mpa=102psi.

## DIN Rail Setting Method

Installing onto DIN Rail	Removing from DIN rail
<ol style="list-style-type: none"> <li>① First, loosen the end block fixing bolt.</li> <li>② Let the lower-side hooks catch on the DIN rail.</li> <li>③ Press upward on the manifold, to let the upper-side hooks also catch on the DIN rail.</li> <li>④ Tighten the end block fixing bolt.</li> </ol>	<ol style="list-style-type: none"> <li>① First, loosen the end block fixing bolt.</li> <li>② Press upward on the manifold, and release the upper-side hooks from the DIN rail.</li> <li>③ Pull the manifold forward, and remove from the DIN rail.</li> </ol>

# Manifold Block for Mounting Solenoid Valves 110 Series

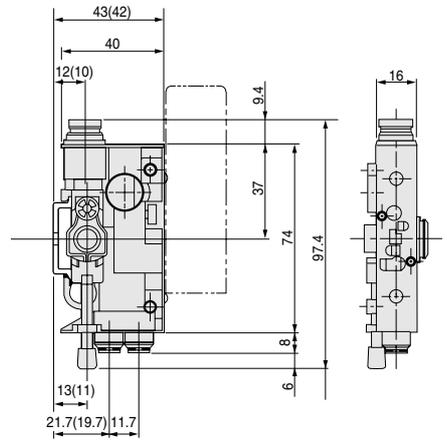
## Manifold block

### 1HPM-3EX

- Without split
- P port: Built-in straight quick fitting for  $\phi$  8 tube
- R port: With filter
- A, B port: Built-in quick fitting for  $\phi$  4 tube
- Mass: 53g
- With valve mounting screws



CAD 1HPM-2EX



Figures in parentheses ( ) are for the mount base mounting.

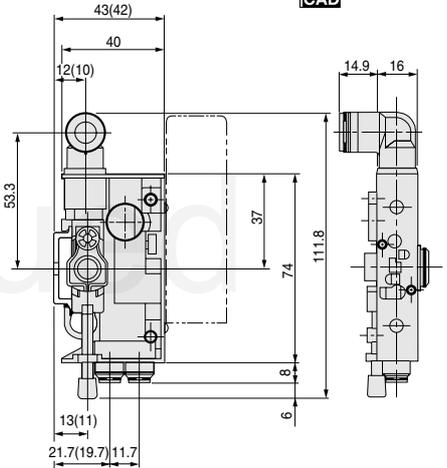
## Manifold block

### 1HPM-5EX

- Without split
- P port: Built-in elbow quick fitting for  $\phi$  8 tube
- R port: With filter
- A, B port: Built-in quick fitting for  $\phi$  4 tube
- Mass: 64g
- With valve mounting screws



CAD 1HPM-4EX



Figures in parentheses ( ) are for the mount base mounting.

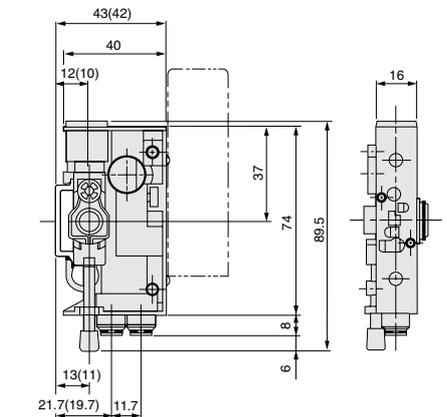
## Manifold block

### 1HPM-6EX

- Without split
- P port: None
- R port: With filter
- A, B port: Built-in quick fitting for  $\phi$  4 tube
- Mass: 44g
- With valve mounting screws



CAD 1HPM-6EX



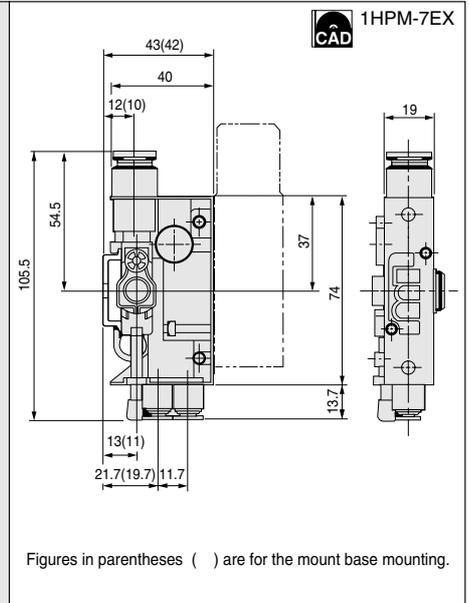
Figures in parentheses ( ) are for the mount base mounting.

# Manifold Block for Mounting Solenoid Valves 180 Series

## Manifold block

### 1HPM-8EX

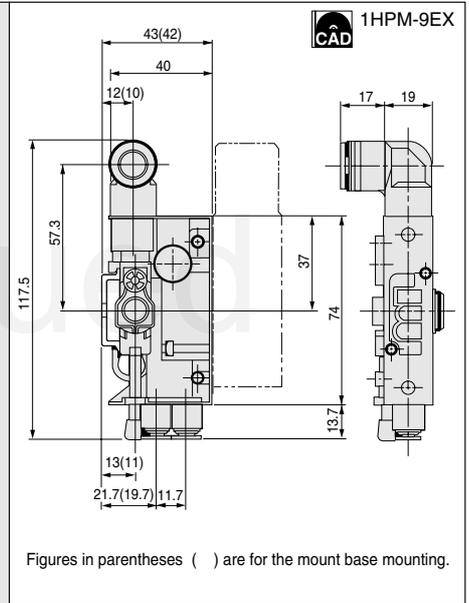
- Without split
- P port: Built-in straight quick fitting for  $\phi$  10 tube
- R port: With filter
- A, B port: Built-in quick fitting for  $\phi$  6 tube
- Mass: 75g
- With valve mounting screws



## Manifold block

### 1HPM-10EX

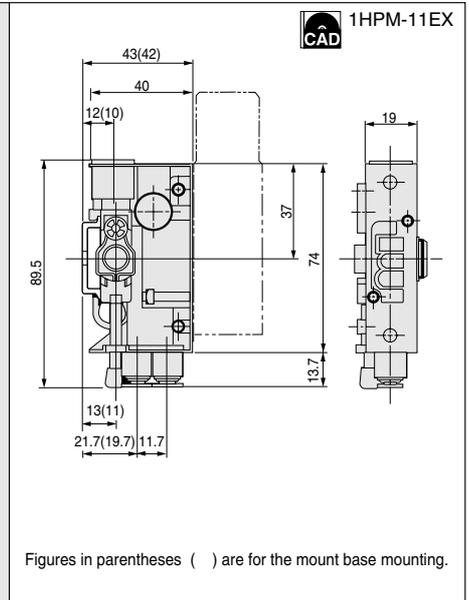
- Without split
- P port: Built-in elbow quick fitting for  $\phi$  10 tube
- R port: With filter
- A, B port: Built-in quick fitting for  $\phi$  6 tube
- Mass: 75g
- With valve mounting screws



## Manifold block

### 1HPM-11EX

- Without split
- P port: None
- R port: With filter
- A, B port: Built-in quick fitting for  $\phi$  6 tube
- Mass: 47g
- With valve mounting screws



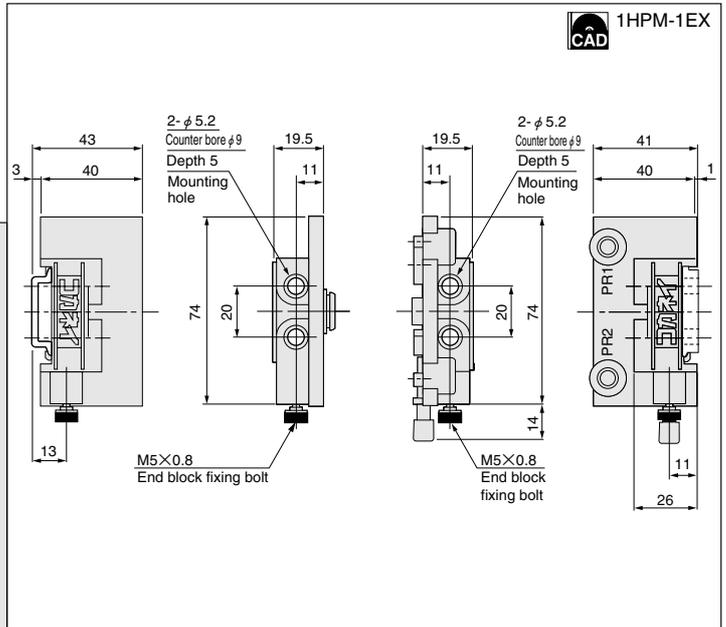
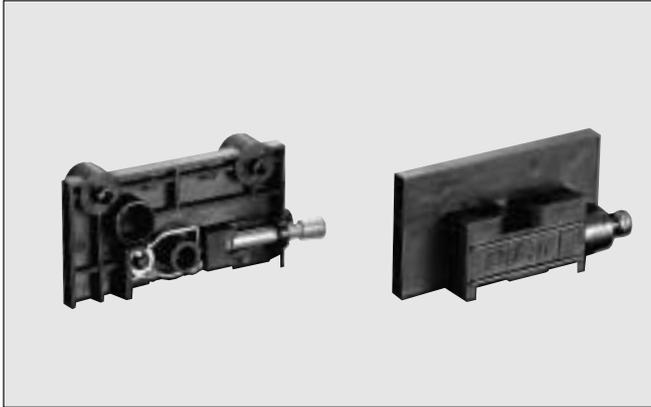
STACKING MANIFOLD

## Stacking Manifold Additional Parts

### End block set

# 1HPM-1EX

- The single-unit module is provided as two items in one set.
- PR port: With filter
- Mass: 93g (1 set)



Discontinued

## Manifold Block with Split

### For mounting 110 series

The split cuts off air from the block with the smaller station number.

#### Manifold block

### 1HPM-2EX

- With split
- P port: Built-in straight quick fitting for  $\phi$  8 tube
- R port: With filter
- A, B port: Built-in quick fitting for  $\phi$  4 tube
- Mass: 55g
- With valve mounting screws



#### Manifold block

### 1HPM-4EX

- With split
- P port: Built-in elbow quick fitting for  $\phi$  8 tube
- R port: With filter
- A, B port: Built-in quick fitting for  $\phi$  4 tube
- Mass: 66g
- With valve mounting screws



#### Block-off plate set

### 1HPM-18EX

#### Valve mounting screw set

### 1HPM-14EX

- Dedicated screw for mounting the solenoid valves 110 series on the manifold block.
- 2 screws as one set
- Mass: 2g (1 set)

### For mounting 180 series

The split cuts off air from the block with the smaller station number.

#### Manifold block

### 1HPM-7EX

- With split
- P port: Built-in straight quick fitting for  $\phi$  10 tube
- R port: With filter
- A, B port: Built-in quick fitting for  $\phi$  6 tube
- Mass: 77g
- With valve mounting screws



#### Manifold block

### 1HPM-9EX

- With split
- P port: Built-in elbow quick fitting for  $\phi$  10 tube
- R port: With filter
- A, B port: Built-in quick fitting for  $\phi$  6 tube
- Mass: 77g
- With valve mounting screws



#### Block-off plate set

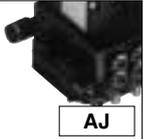
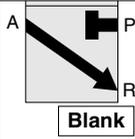
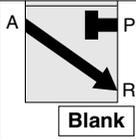
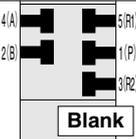
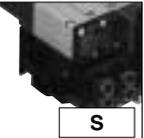
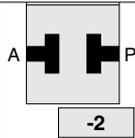
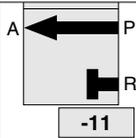
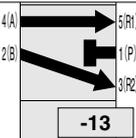
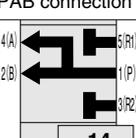
### 1HPM-19EX

#### Valve mounting screw set

### 1HPM-15EX

- Dedicated screw and gasket for mounting the solenoid valves 180 series on the manifold block.
- 2 screws + 1 gasket
- Mass: 4g (1 set)

# Stacking Manifold Order Code

Manifold model	2-, 3-port valve Number of ports	2-, 3-port valve Valve function	3-position valve Valve function	Manual override	Wiring	Manifold block
AJ type manifold complete unit  AJ	3-port  Blank	Normally closed (NC)  Blank	All port block  Blank	Non-locking type  Blank	Grommet type  Blank	1HPM-2EX  -2EX 1HPM-7EX  -7EX
AJ type manifold stacking unit  S	2-port  -2	Normally open (NO)  -11	ABR connection  -13	Locking protruding type  -83	Straight connector with LED indicator  -PSL	1HPM-3EX  -3EX 1HPM-8EX  -8EX
			PAB connection  -14		L connector with LED indicator  -PLL	1HPM-4EX  -4EX 1HPM-9EX  -9EX
						1HPM-5EX  -5EX 1HPM-10EX  -10EX
						1HPM-6EX  -6EX 1HPM-11EX  -11EX

Manifold model Number of units	Station	Basic model	Valve function	Manual override	Wiring	Manifold block	Voltage
1HPM	1 ⋮ 20	AJ S	stn. <input type="checkbox"/> stn. <input type="checkbox"/>	-A110E1 -2 -11 -A110-4E1 -A110-4(K)E2 -A113-4(K)E2 -13,-14 -A180E1 -2 -11 -A180-4E1 -A180-4(K)E2 -A183-4(K)E2 -13,-14	-83	-PSL -PLL	-2EX -3EX -4EX -5EX -6EX  -7EX -8EX -9EX -10EX -11EX  DC12V DC24V AC100V AC200V

- Valve mounting location from the left-hand side when facing A, B port.
- Since the twin solenoid valve needs two stations per valve to mount, select a manifold block for each station, after the example as shown below.

Example  
stn.1- A113-4KE2-PSL -3EX DC24V  
stn.2- Blank -6EX DC24V

- Specify the valve type for each station.
- For details of specifications, see the solenoid valves 110 and 180 series.
- Enter -BP when closing a station with a block-off plate without mounting a valve.

- Common terminal wiring connectors are also manufacturable. For delivery times etc., consult us.

## Additional parts order code

1HPM-EX

1~19

- For details, see p. 308~311.

## Made to order

Sub-base regulator (For solenoid valves 180 series only)

Valve basic model -  -  EX

7~11

Sub-base regulator

-52—P port pressure regulating type

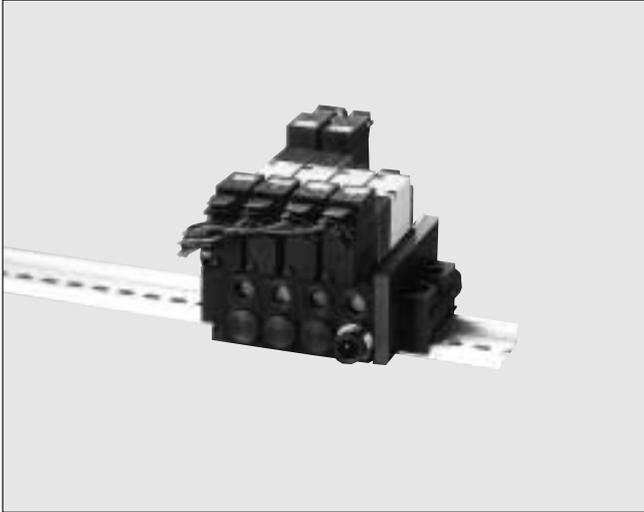
-54—B port pressure regulating type<sup>Note</sup>

Note: Regarding B port pressure regulating type, also with A port pressure regulating type assembled so that adjusting screw is on the manifold R2 port side (Order code: -54A) is available.

## Example of Stacking Manifold Configuration

### Configuration example of 110 series

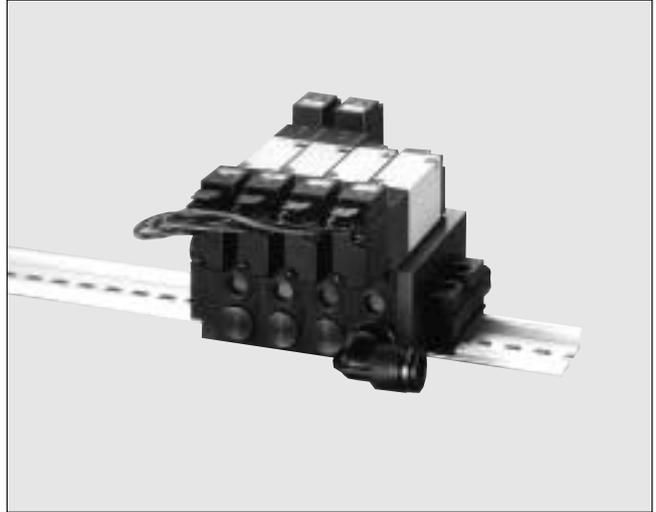
4 stations with 1 straight fitting



Order code **1HPM4AJ** stn.1-A110-4E1-PSL-3EX DC24V  
stn. 2-A110-4E1-PSL-6EX DC24V  
stn. 3 ~4-A110-4E2-PSL-6EX DC24V

### Configuration example of 180 series

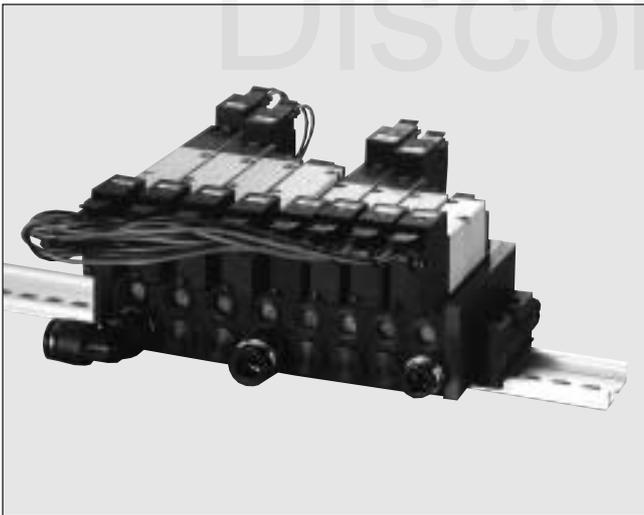
4 stations with 1 elbow fitting



Order code **1HPM4AJ** stn. 1-A180-4E1-PSL-10EX DC24V  
stn. 2-A180-4E1-PSL-11EX DC24V  
stn. 3 ~4-A180-4E2-PSL-11EX DC24V

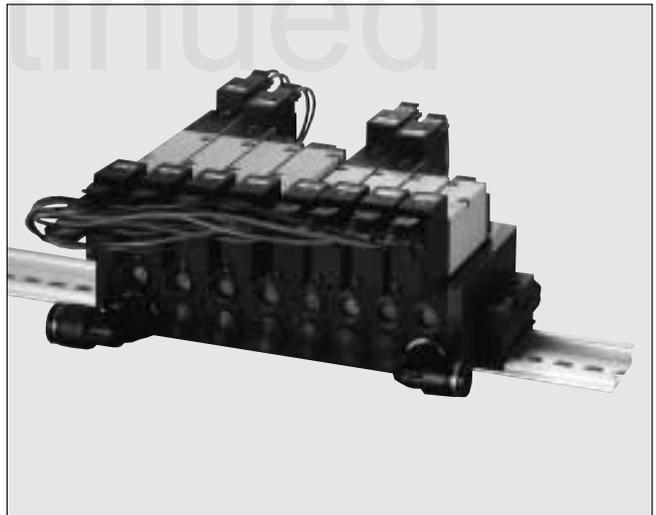
### Combined mounting examples of 110 and 180 series

8 stations with 2 straight fittings and 1 elbow fitting



Order code **1HPM8AJ** stn.1-A110E1-PSL-3EX DC24V  
stn.2-A110-4E1-PSL-6EX DC24V  
stn.3-A110-4E2-PSL-6EX DC24V  
stn.4-A113-4E2-PSL-6EX DC24V  
stn.5-A180E1-PSL-7EX DC24V  
stn.6-A180-4E1-PSL-11EX DC24V  
stn.7-A180-4E2-PSL-11EX DC24V  
stn.8-A183-4E2-PSL-10EX DC24V

8 stations with 2 elbow fittings



Order code **1HPM8AJ** stn.1-A110E1-PSL-5EX DC24V  
stn.2-A110-4E1-PSL-6EX DC24V  
stn.3-A110-4E2-PSL-6EX DC24V  
stn.4-A113-4E2-PSL-6EX DC24V  
stn.5-A180E1-PSL-11EX DC24V  
stn.6-A180-4E1-PSL-11EX DC24V  
stn.7-A180-4E2-PSL-11EX DC24V  
stn.8-A183-4E2-PSL-10EX DC24V

# Example and Dimensions of Stacking Manifold Combination (Scale 1/3, Unit mm)

**1HPM8AJ** For details of the mounting valve dimensions, see the solenoid valves 110 series and solenoid valves 180 series.

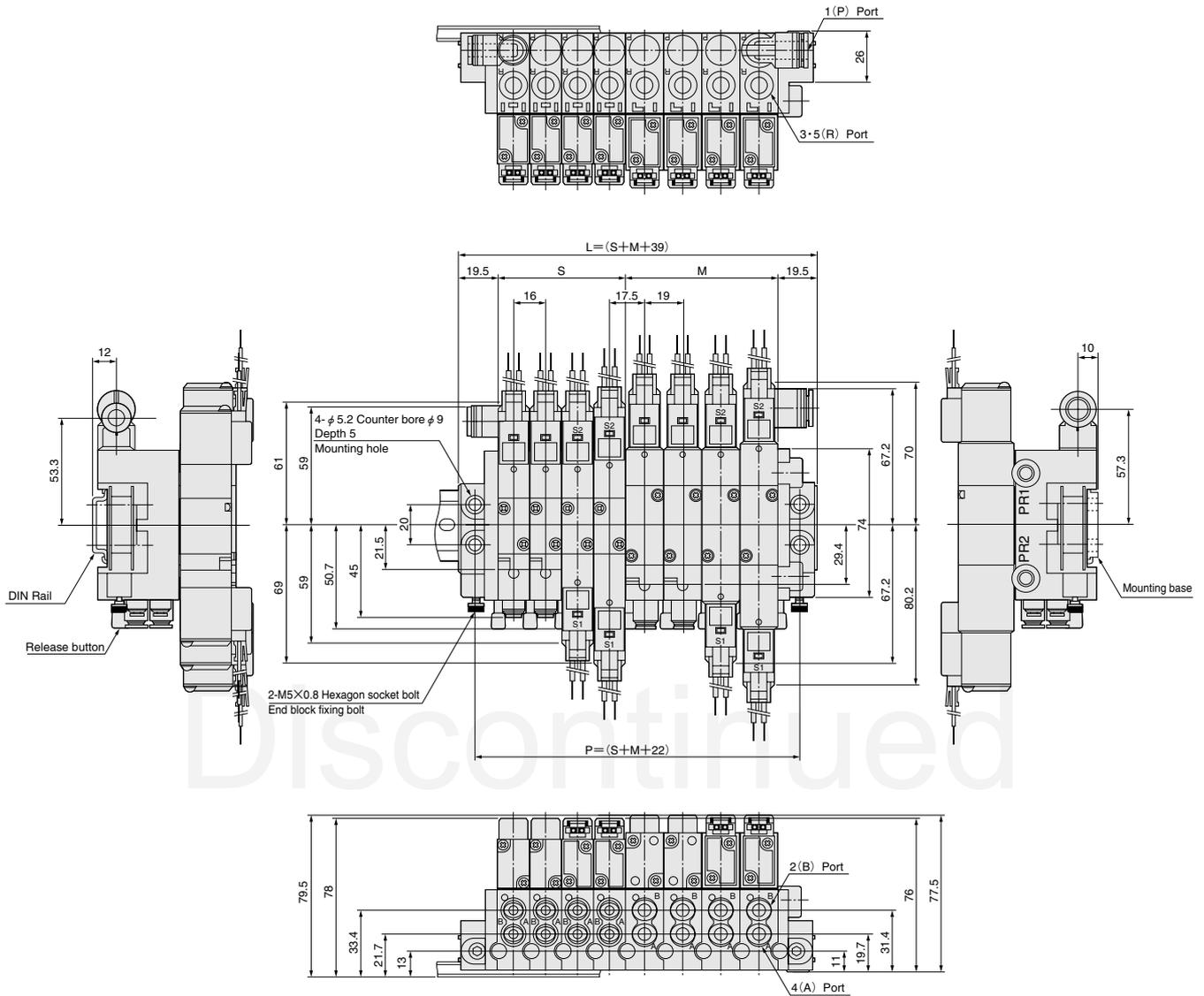


Illustration shows the case that all the mounted valves have a straight connector with LED indicator.

## Unit dimensions

Code	S	M
Series	For 110 series	For 180 Series
Number of units	-2EX	-7EX
	-3EX	-8EX
	-4EX	-9EX
	-5EX	-10EX
	-6EX	-11EX
1	16	19
2	32	38
3	48	57
4	64	76
5	80	95
6	96	114
7	112	133
8	128	152
9	144	171
10	160	190

Code	S	M
Series	For 110 series	For 180 Series
Number of units	-2EX	-7EX
	-3EX	-8EX
	-4EX	-9EX
	-5EX	-10EX
	-6EX	-11EX
11	176	209
12	192	228
13	208	247
14	224	266
15	240	285
16	256	304
17	272	323
18	288	342
19	304	361
20	320	380

## Details of the Combination Example 1HPM8AJ

Station	Type of mounted valve	Type of manifold block	Port	Connection port specification	Split
stn.1	A110E1	1HPM-5EX	P	Built-in elbow quick fitting for $\phi$ 8 tube	None
			A, B	Built-in quick fitting for $\phi$ 4 tube	
			R	With filter	
stn.2	A110-4E1	1HPM-6EX	P	None	None
			A, B	Built-in quick fitting for $\phi$ 4 tube	
			R	With filter	
stn.3	A110-4E2	1HPM-6EX	P	None	None
			A, B	Built-in quick fitting for $\phi$ 4 tube	
			R	With filter	
stn.4	A113-4E2	1HPM-6EX	P	None	None
			A, B	Built-in quick fitting for $\phi$ 4 tube	
			R	With filter	
stn.5	A180E1	1HPM-11EX	P	None	None
			A, B	Built-in quick fitting for $\phi$ 6 tube	
			R	With filter	
stn.6	A180-4E1	1HPM-11EX	P	None	None
			A, B	Built-in quick fitting for $\phi$ 6 tube	
			R	With filter	
stn.7	A180-4E2	1HPM-11EX	P	None	None
			A, B	Built-in quick fitting for $\phi$ 6 tube	
			R	With filter	
stn.8	A183-4E2	1HPM-10EX	P	Built-in elbow quick fitting for $\phi$ 10 tube	None
			A, B	Built-in quick fitting for $\phi$ 6 tube	
			R	With filter	

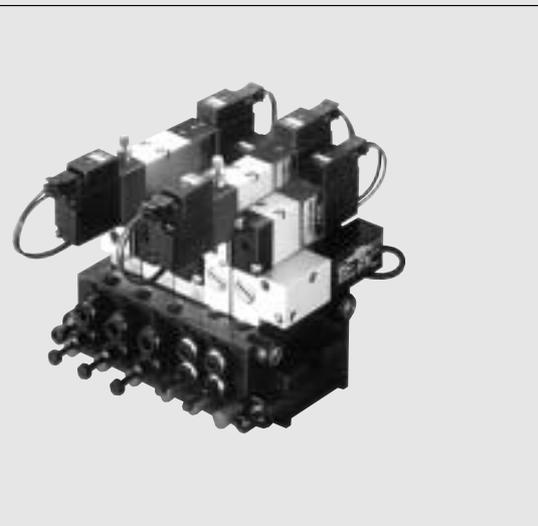
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### Expanding World of Stacking Variations



Example of mounting PC board block

Example of combined mounting with micro ejectors



For details about product types and specifications, contact us.

## Handling Instructions and Precautions

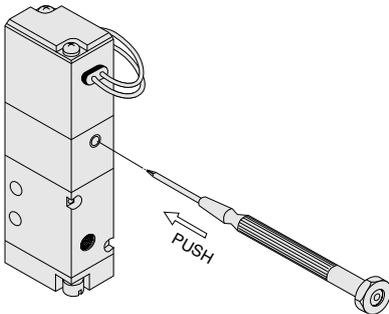


### Manual override

#### Non-locking type

To operate, press the manual override all the way down. The valve works the same as an energized state as long as the manual override is pushed down, and returns to the rest position upon release.

In the double solenoid and twin solenoid, pressing the manual override on the S1 (S2) side switches the state of the S1 (S2) to energized state, and the unit remains in that state even after the manual override is released. To return to the rest position, operate the manual override on the S2 (S1) side.

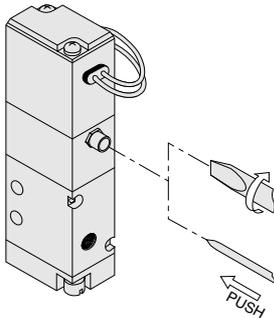


※ Illustration shows the 110 series.

#### Locking protruding type

Use a small screwdriver to turn the adjusting knob several times in a clockwise direction, and lock the manual override in place. When locked, turning the adjusting knob several times in a counterclockwise direction releases a spring on the manual override, returns it to the original position, and releases the lock.

For the locking protruding type, if the adjusting knob is never turned, this type acts just like the non-locking type, like the valve energizing status as long as the manual override is pushed down, and returning to the rest position upon release.



※ Illustration shows the 110 series.

- Cautions:**
1. The 110,180 series are internal pilot type solenoid valves, the manual override cannot switch the main valve without supplying air from the P port.
  2. Always release the lock on the locking protruding type manual override before commencing normal operation.
  3. Do not attempt to operate the manual override with a pin or other object having an extremely fine tip. It could damage the manual override button.
  4. Do not turn the adjusting knob more than the amount needed. It could result in defective operation.



### General precautions

1. Before supplying air to the manifold, always check that the end block fixing bolts or mounting bolts on the both sides are firmly tightened. If air is supplied before both end blocks are securely fixed, it could result in air leaks and in the separation of the manifold block.
2. Never loosen the end block fixing bolts or mounting bolts while air is being supplied to the manifold, or when there is still residual pressure. For works to change the number of units, etc., always check that the air has been completely exhausted from inside the manifold before proceeding.
3. The manifold connecting mechanism is designed to automatically release when subjected to excessive loads due to flexion, etc. When transporting a manifold of many stations without mounting on a DIN rail etc., always support the manifold securely on both ends, or split it up for transport.
4. When connecting manifold blocks or end blocks, always check to see that all release buttons are reset to their initial positions. If the release button is pushed in, pull lightly on it to restore it to the initial position.
5. Although any mounting position is allowed, always ensure that the valve body is not directly under strong shocks or vibrations.
6. For other handling instructions and precautions, see the 110 series and 180 series.